DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-018788
Date Inspected: 05-Dec-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG

Summary of Items Observed:
CWI Inspector: Mr. Bao Qian

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication.

OBG Bay 13

This QA Inspector observed ZPMC welder Mr. Wang Quanlin stencil 066746 used flux cored welding procedure WPS-345-FCAW-3G(3F)-ESAB-Repair to make weld repairs to OBG segment 13AE grillage weld SA7038-037. ZPMC QC presented this QA Inspector with weld repair document B-WR-17827 that documents the repair of this weld. This QA Inspector observed ZPMC QC has recorded the a welding current of 257 amps and 26.2 volts and a welding travel speed of 142 mm per minute. This QA Inspector observed Mr. Wang Quanlin appeared to be certified to make this weld and the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 14

This QA Inspector observed ZPMC welder Ms. Wang Min, stencil 044771 used submerged arc welding procedure specification WPS-B-T-2221-B-L2C-S-2 to make weld SEG3019*-005. This weld joins OBG segment 14E deck

plates. This QA Inspector observed a welding current of approximately 580 amps, 30.0 volts, a welding travel speed of 490mm per minute and Ms. Wang Min appeared to be certified to make this weld. This QA Inspector observed the base materials had been preheated with electric heaters prior to welding. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Hong Liang stencil 050242 used flux cored welding procedure WPS-B-T-2232-ESAB to make OBG segment 13AE weld SA30007K-038. ZPMC QC had recorded a welding current of 287 amps, 25.5 volts and a welding travel speed of 269mm per minute. This QA Inspector observed Mr. Hong Liang appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Dan Deyin, stencil 044795 used flux cored welding procedure specification WPS-B-T-2232-ESAB to make OBG segment 13AE weld SEG3007F-036. This QA Inspector observed ZPMC QC Inspector ZPMC QC Mr. Zhong Guo Hui had recorded a welding current of 285 amps, 25.7 volts and a welding travel speed of 254mm per minute. This QA Inspector measured a welding current of approximately 374.4 amps and 25 volts. This QA Inspector observed that the maximum welding current listed in the welding procedure specification is 320 amps and that Mr. Dan Deyin had a welding current that was approximately 55 amps above this maximum limit. This QA Inspector showed ABF CWI Mr. Bao Qian the welding procedure specification and he agreed the welding current was too high. Mr. Bao Qian had ZPMC welder Mr. Dan Deyin adjust this welding machine to a welding current of approximately 300 amps. Mr. Bao Qian informed this QA Inspector that he had previously measured the welding current and it was acceptable. This QA Inspector observed Mr. Dan Deyin appeared to be certified to make this weld. Following adjustment of the welding machine current, items observed on this date appeared to generally comply with applicable contract documents. See the photographs below for additional information.

This QA Inspector observed ZPMC welder Mr. Zhang Quin Quan, stencil 044774 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE weld SEG3007F-036. This QA Inspector observed ZPMC QC has recorded a welding current of 251 amps, 25.1 volts and a travel speed of 136mm per minute. This QA Inspector observed that Mr. Zhang Quin Quan appeared to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Hai Yang, stencil 068994 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE weld SEG3007AT-030. This QA Inspector observed ZPMC QC Inspector ZPMC QC Mr. Zhong Guo Hui had recorded a welding current of 258 amps, 25.3 volts and a welding travel speed of 238mm per minute. This QA Inspector measured a welding current of approximately 340 amps and 25 volts. This QA Inspector observed that the maximum welding current listed in the welding procedure specification is 320 amps and that Mr. Wang Hai Yang had a welding current that was approximately 20 amps above this maximum limit. This QA Inspector showed ABF CWI Mr. Bao Qian the welding procedure specification and he agreed the welding current was too high. Mr. Bao Qian had ZPMC welder Mr. Wang Hai Yang adjust this welding machine to a welding current of approximately 310 amps. Mr. Bao Qian informed this QA Inspector that someone appears to have changed the welding machine settings. This QA Inspector observed Mr. Wang Hai Yang appeared to be certified to make this weld. Following adjustment of the welding machine current, items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Yuan Wensong, stencil 055491 used flux cored welding procedure WPS-B-T-2232-ESAB to make welds DP3180-001-46, 47, 51, 52 and 59. These welds join OBG longitudinal diaphragm plates to deck plate DP3080-001. This QA Inspector observed ZPMC QC has recorded a welding current of 248 amps, 25.3 volts and a welding travel speed of 138mm per minute. The base materials were preheated with an electric heater and Mr. Yuan Wensong appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Zhengbin, stencil 216086 used shielded metal arc welding procedure specification WPS-345-SMAW-3G(3F)-FCM-Repair to make repairs of OBG segment 13AE weld SEG3007L-014. This weld had been ultrasonically rejected and was repaired in accordance with weld repair document B-WR18395. ZPMC QC had documented that the depth of the repair was 7mm. This QA Inspector observed ZPMC QC had recorded a welding current of 244 amps, 25.3 volts and a travel speed of 132mm per minute. This QA Inspector observed Mr. Wang Zhengbin appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder stencil 044837 used shielded metal arc welding procedure specification WPS-345-SMAW-3G(3F)-FCM-Repair to make repairs of OBG segment 13AE weld SEG3007G-018. This weld had been ultrasonically rejected and was repaired in accordance with weld repair document B-WR18399. ZPMC QC has documented that the depth of the repair was 9mm. This QA Inspector observed ZPMC QC recorded a welding current of 251 amps, 24.8 volts and a travel speed of 134mm per minute. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Ye Bing stencil 066733 used flux cored welding procedure specification WPS-B-T-2232-ESAB to make OBG segment 13AE weld SEG3007L-046. This QA Inspector observed a welding current of approximately 300 amps, 27.3 volts, and a welding travel speed of approximately 300mm per minute. This QA Inspector observed that the maximum welding voltage in the WPS is 26.6 volts and that Mr. Ye Bing had a welding voltage that was approximately 1.0 volt above this maximum limit. This QA Inspector showed ABF CWI Mr. Bao Qian and welder Mr. Ye Bing the welding voltage meter and they agreed the welding voltage was above the maximum limit and Mr. Ye Bing adjusted the welding voltage to approximately 26. 0 volts. Following adjustment of the welding voltage, items observed on this date appeared to generally comply with applicable contract documents. See the photograph below for additional information.

This QA Inspector observed ZPMC welder Mr. Hong Liang, stencil 200113 used shielded metal arc welding procedure specification WPS-345-SMAW-2G(2F)-Repair to make repairs of OBG segment 13AE weld SEG3007V-108. This weld had been ultrasonically rejected and was repaired in accordance with weld repair document B-WR17730. ZPMC QC had documented that the depth of the repair was 8mm. This QA Inspector observed ZPMC QC recorded a welding current of 159 amps, 25.4 volts and a travel speed of 112mm per minute. This QA Inspector observed Mr. Hong Liang appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Chen Chuanzong, stencil 044824 used flux cored welding procedure specification WPS-B-T-2231-ESAB to make OBG segment 14E welds SEG3019A-019 and 020. This QA Inspector observed ZPMC QC recorded a welding of 308 amps, 25.9 volts and 300mm per minute. This QA

Inspector observed Mr. Chen Chuanzong appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Li, stencil 044772 used shielded metal arc welding procedure specification WPS-345-SMAW-4G(4F)-FCM-Repair-1 to make repairs of OBG segment 13CE floor beam splice weld SEG3011E-274. This weld had been ultrasonically rejected and was repaired in accordance with weld repair document WR-17639. ZPMC QC documented that the depth of the repair was 8mm. This QA Inspector observed ZPMC QC had recorded a welding current of 232 amps, 25.4 volts and a travel speed of 285mm per minute. This QA Inspector observed Mr. Wang Li appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact James Devey +8615000026784, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

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Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer